

# Ecological engineering to improve coastal biodiversity and resilience

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## Rationale

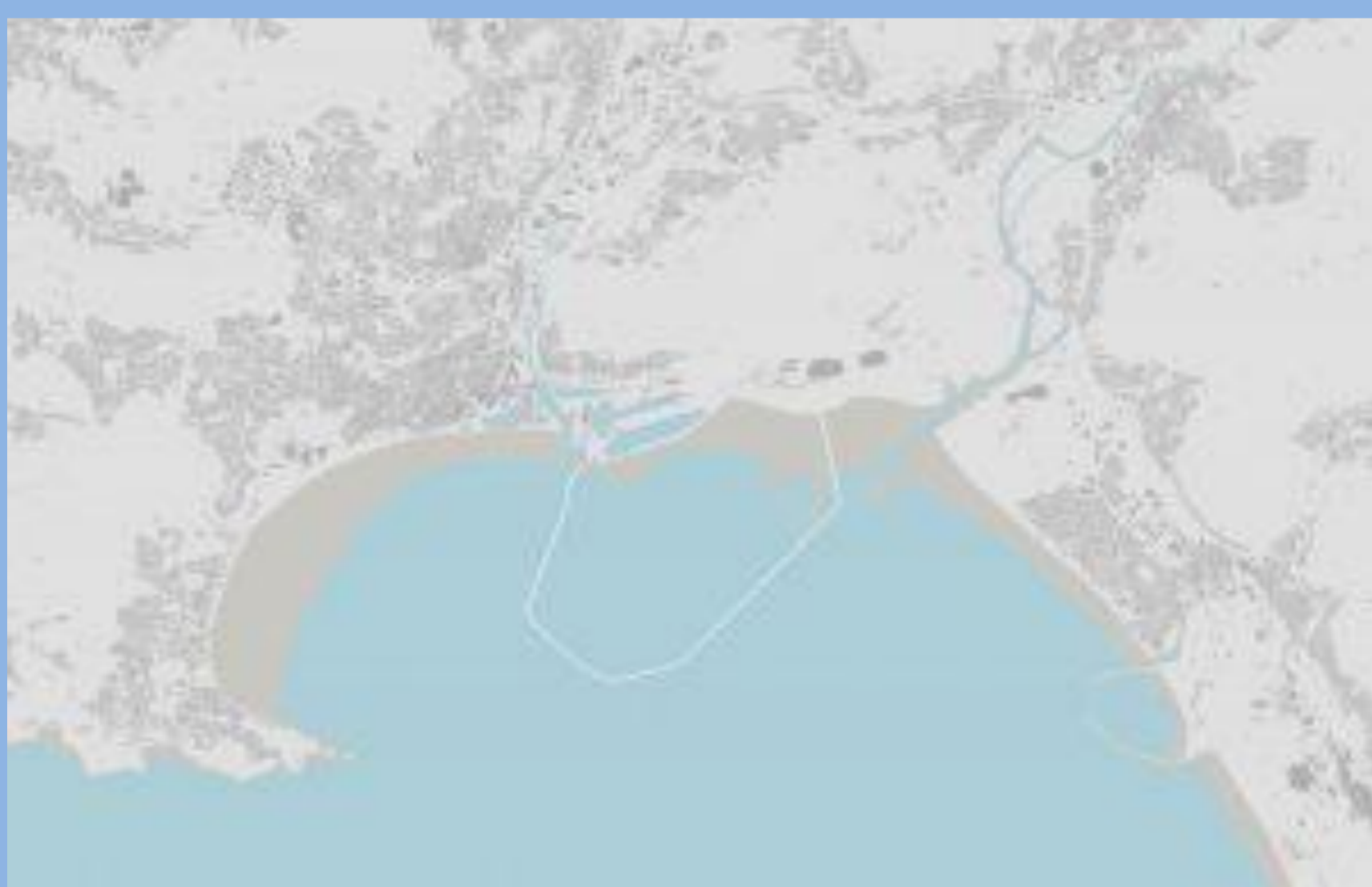
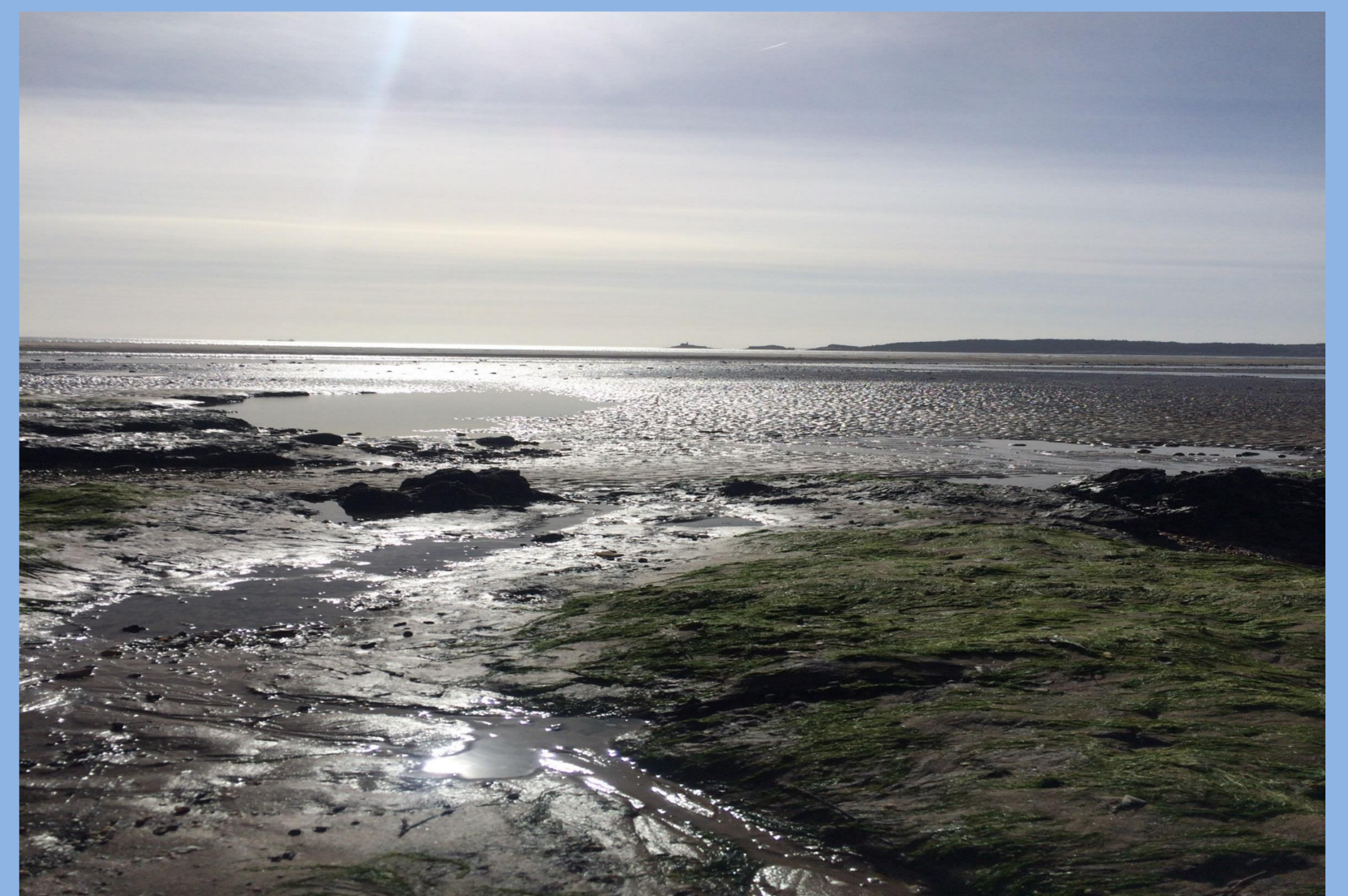
Rising sea level and increasing storminess threaten biodiversity and resilience (i.e., the ability to persist and continue to provide ecosystem services in the face of environmental change) of coastal ecosystems including sand dunes, salt marshes, and rocky shores. Construction of renewable energy structures (e.g., tidal lagoons) in coastal areas presents both issues and opportunities for biodiversity and ecosystem resilience.

Key issues are that such structures may:

- modify water and sediment movement to increase erosion of sensitive sand dunes and marshes; and
- create simplified hard substrates with low biodiversity.

Key opportunities are:

- modification of homogeneous rock structures to create complex substrates that can facilitate biodiverse, highly functional, ecological communities on the walls of structures
- management of sediment and vegetation in sand dunes and salt marshes can create new habitats and increase resilience of existing habitats.



## Outcome

- Recommendations for augmenting walls of tidal lagoons to facilitate biodiversity.
- Reveal the extent to which vegetation aids resilience in sand dunes, which is, counter to common assumptions, poorly understood.
- Shed light on the most important properties of this vegetation (species identity, density, diversity)
- Inform best practice in augmenting or creating sand dunes in the region.

